

# Tobacco and Health in Grays Harbor County



A 2001 Community  
Health Profile Report

Grays Harbor County  
Public Health & Social Services Department



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The Mission of the Grays Harbor County Public Health and Social Services Department is to collaborate with community partners to effectively promote, improve, and protect the mental and physical health and safety of Grays Harbor County residents in a way that respects the culture of our community.

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# Tobacco is a Public Health Issue

Use of and exposure to tobacco is the **most significant** cause of preventable disease and death among Grays Harbor County residents. Tobacco use is strongly related to heart disease, stroke, chronic lower respiratory disease, low birth weight and many kinds of cancer. Exposure to tobacco can occur through personal use of tobacco products and through passive exposure to environmental tobacco smoke.

The use of tobacco products quickly results in dependence on nicotine, a drug found in tobacco which produces one of the most powerful addictions known. <sup>i</sup> About 76% of smokers in the United States say that they would like to quit, and each year, about 17 million Americans try to stop smoking. Only 1.3 million succeed. <sup>ii</sup>

Tobacco use is of concern to smokers and non-smokers alike. Even people who are never exposed to tobacco feel its effects through rising health care costs and the lost productivity of people disabled through tobacco-related chronic disease. The cost to all of us in the loss of human life is truly immeasurable.

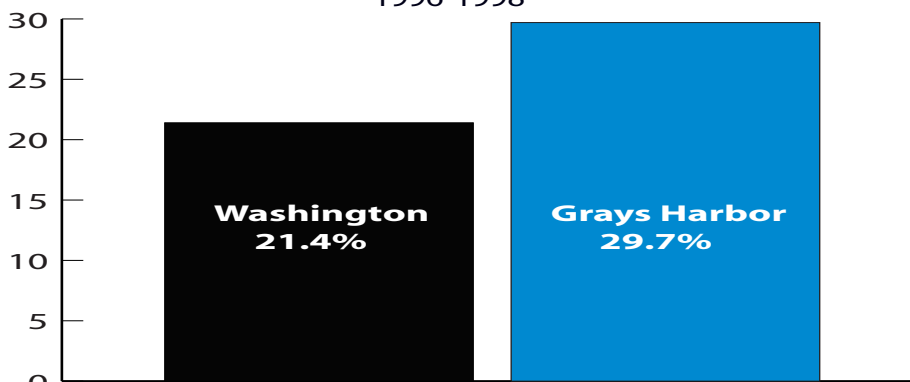
## We Use a Lot of Tobacco

Through annual statewide telephone surveys of adult and student health behaviors and birth certificate data, we know that a higher percentage of people who live in Grays Harbor County use tobacco than in other parts of Washington State. It is also clear that rates of tobacco use in Grays Harbor are not falling as fast as in other parts of the state. <sup>iii</sup>

### Adult Tobacco Use

Grays Harbor County has one of the highest rates of adult smoking in Washington State. In 1998, almost 3 out of 10<sup>+</sup> county residents over age 18 reported that they currently smoked cigarettes, and an additional 1 in 20<sup>+</sup> used smokeless tobacco. <sup>iii</sup>

Chart 1. Percent of Adults Who Currently Smoke,  
Grays Harbor County and Washington State,  
1996-1998

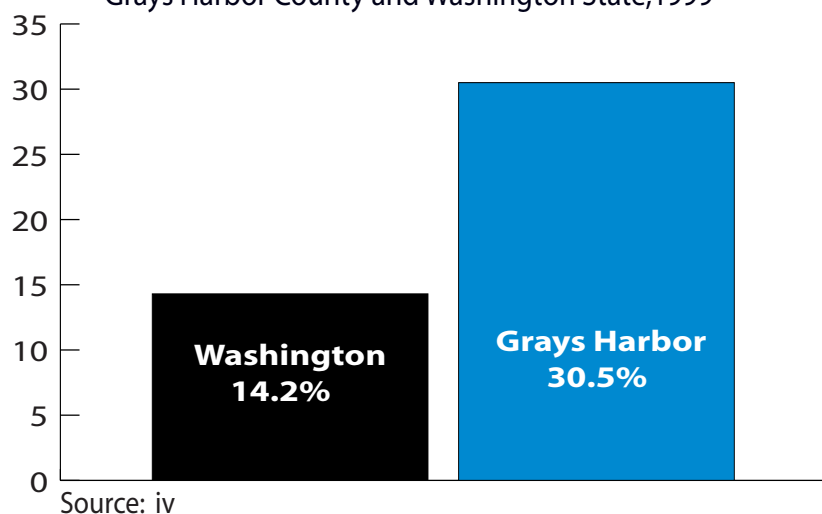


Source: <sup>iii</sup>

\* Rate is an average using data collected 1996-98.

<sup>+</sup> Rate is an average using data collected 1993-97.

Chart 2. Percent of Women Giving Birth Who Report Smoking During Pregnancy, Grays Harbor County and Washington State, 1999

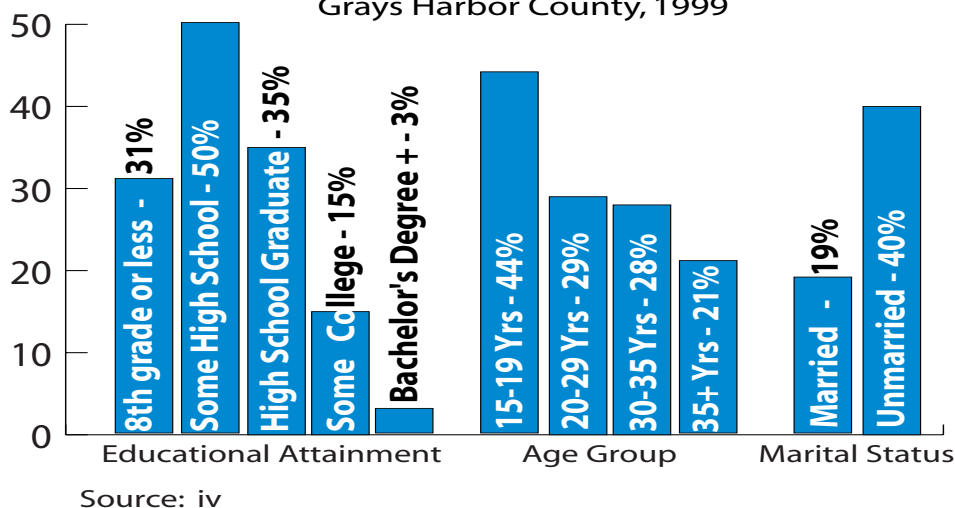


### Tobacco Use Among Pregnant Women

Grays Harbor County also has one of the highest rates of smoking during pregnancy in the state. In 1999, over 30% of babies born to county residents had mothers who reported smoking during their pregnancy. <sup>iii</sup>

Smoking among pregnant women varies with age, educational status, and marital status. Younger, unmarried, and less educated mothers were more likely to report smoking during pregnancy than older, married, and more educated mothers. <sup>iv</sup>

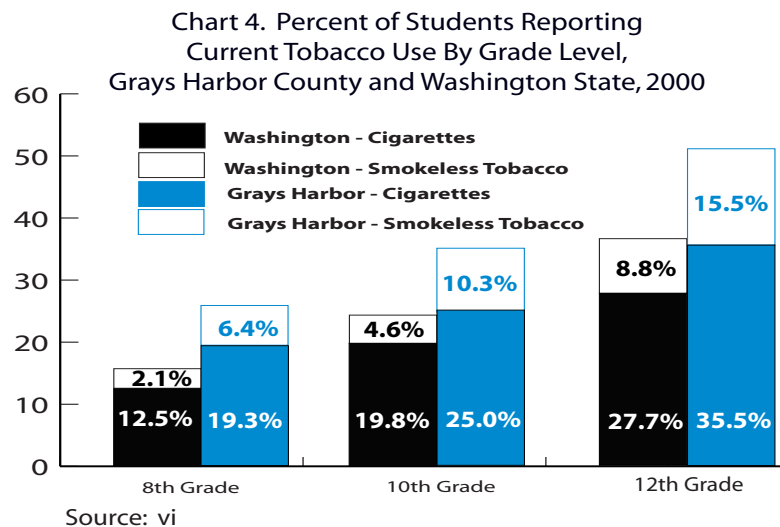
Chart 3. Percent of Women Giving Birth Who Report Smoking During Pregnancy, By Education, Age, and Marital Status, Grays Harbor County, 1999



## Youth Tobacco Use

Although it is against the law to sell tobacco products to children under 18, research tells us that the average age at which people begin to smoke is 12 years. Four out of five adult smokers report that they started smoking before the age of 18.<sup>v</sup> A school-based survey of students showed that Harbor young people are more likely to smoke and to begin at younger ages than students statewide.

By 10<sup>th</sup> grade, 1 in 4 young people in Grays Harbor reported that they currently use cigarettes and 1 in 10 reported currently using smokeless tobacco.<sup>vi</sup>



## Tobacco is Making Us Sick

From bronchitis to lung cancer, people who smoke are more likely to get sick. And once sick, people who smoke tend to get sicker and stay sick longer than people who don't. Chronic exposure to smoke damages the lungs and reduces the body's ability to fight infections.

Nonsmokers who are exposed to the smoke of others also suffer. Children who live in houses where adults smoke indoors get sick more often with ear infections, bronchitis, pneumonia, and other serious infections than children who aren't around tobacco smoke. Environmental tobacco smoke can also worsen the symptoms of a child's asthma.<sup>vii</sup>

There is no method to track the impact of this sort of illness and its relationship to tobacco use in Washington State. We can, however, look at hospitalizations for conditions like chronic lower respiratory disease that are also strongly associated with tobacco use.



## Incidence/Hospitalization Rates

The following charts and discussion demonstrate the rates of illness or hospital discharge for diseases related to tobacco. The hospitalization rates are unduplicated, meaning that each person hospitalized is counted only once per year, even if they were hospitalized multiple times during the year for the same health problem. Cancer incidence is tracked through the Washington State Cancer Registry.

### Respiratory Cancer

Respiratory cancer includes cancer of the lung, bronchus, and trachea. Respiratory cancer was the most commonly diagnosed type of cancer among Grays Harbor residents during the period 1996-98.<sup>viii</sup> Research shows that about 85% of all lung cancer is attributable to use of or exposure to tobacco.<sup>iii</sup>

Chart 5. Age-Adjusted (1970) Incidence Rates,  
Cancer of the Lung & Bronchus,  
Grays Harbor County and Washington State, 1996-1998

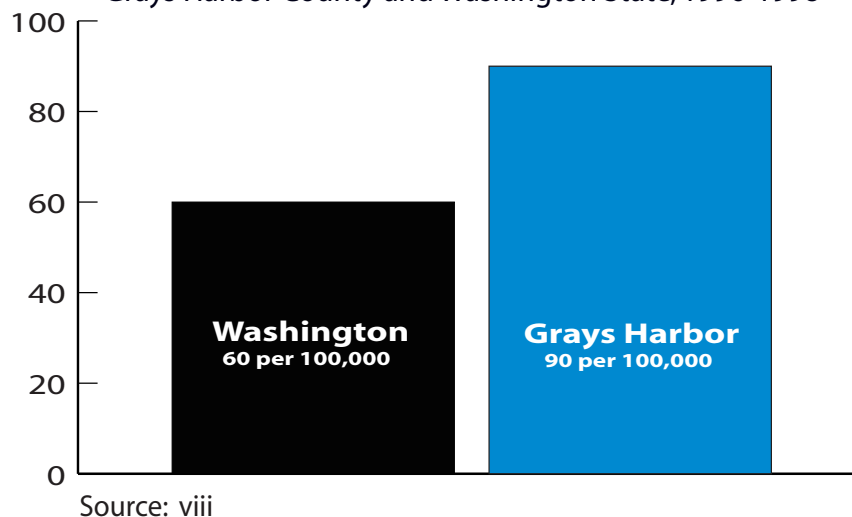
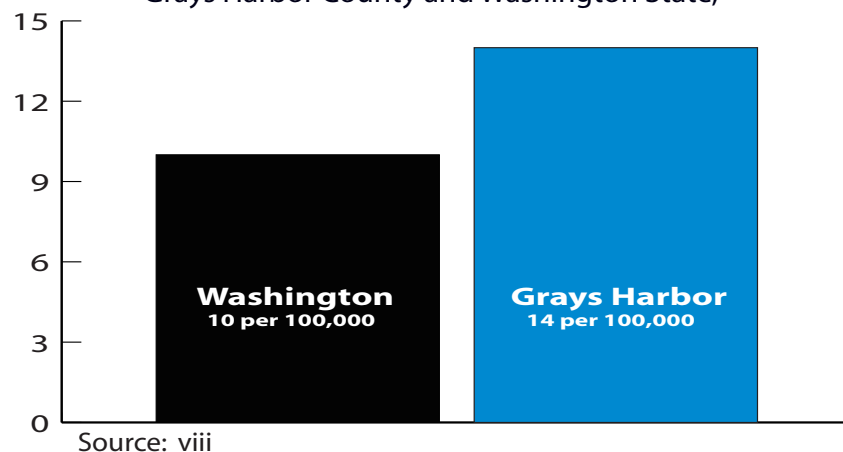


Chart 6. Age-Adjusted (1970) Incidence Rates,  
Cancer of the Mouth & Pharynx,  
Grays Harbor County and Washington State,



### Oral Cancer

Oral cancer includes cancer of the mouth and pharynx (throat). It is strongly related to the use of tobacco, particularly smokeless tobacco (chew). During the period 1996-98, Grays Harbor County had the highest rate of oral cancer in Washington State.<sup>viii</sup>

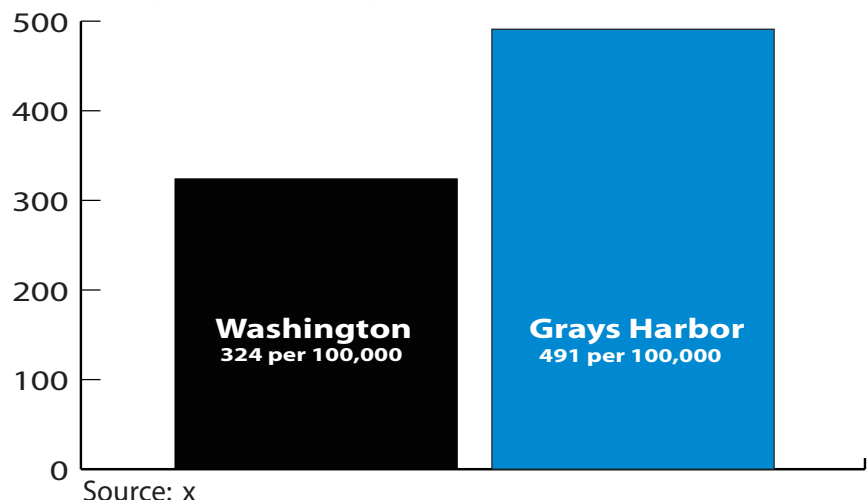
## Heart Disease

Coronary heart disease develops when the blood vessels feeding the heart muscle become blocked. When blockage occurs, blood flow to the heart is decreased and the function of the heart is reduced.

If vessels become completely blocked, part of the heart muscle is without blood flow and a “heart attack” occurs. Smokers experience higher rates of heart disease than nonsmokers, and are 2 to 3 times more likely to

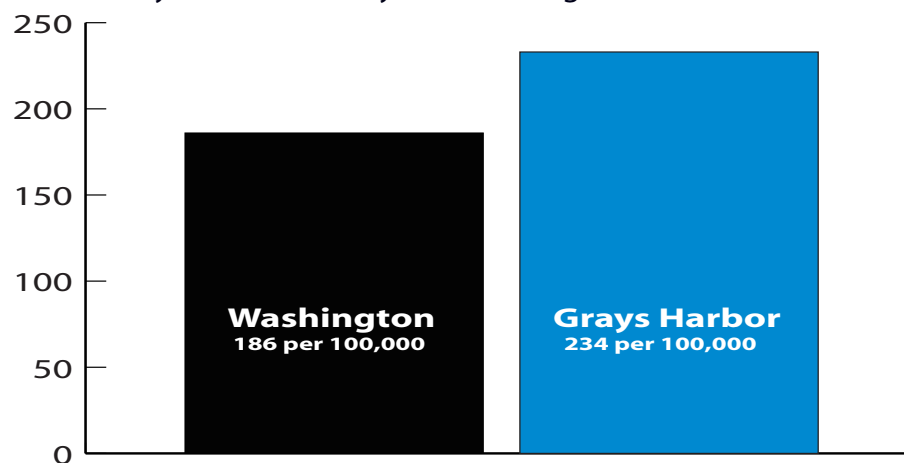
experience a heart attack. Tobacco increases the risk of heart disease in a variety of ways. The nicotine in tobacco causes blood vessels to constrict, which increases blood pressure. In addition, smoking raises blood cholesterol levels and makes the blood more “sticky”, increasing the risk of vessel blockage and heart attack or stroke.<sup>ix</sup> About 21% of all heart disease is attributable to use of or exposure to tobacco.<sup>iii</sup>

Chart 7. Age-Adjusted (2000) Unduplicated Hospitalization Rates, Coronary Heart Disease, Grays Harbor County and Washington, 1995-1999



Source: x

Chart 8. Age-Adjusted (2000) Unduplicated Hospitalization Rates, Stroke, Grays Harbor County and Washington State, 1995-1999

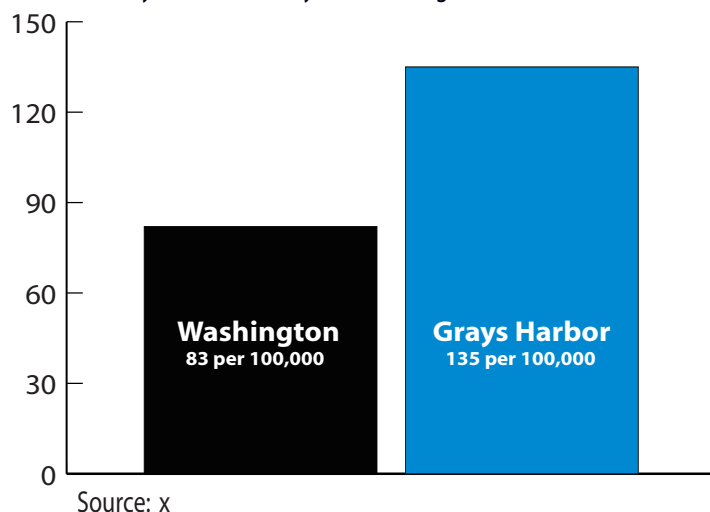


Source: x

## Stroke

Stroke occurs when the blood supply to a part of the brain is interrupted. This can happen when blood vessels in the brain are blocked, as in a heart attack. It can also happen when blood vessels in the brain rupture and bleed. About 21% of all strokes are attributable to use of or exposure to tobacco.<sup>iii</sup>

Chart 9. Age-Adjusted (2000) Unduplicated Hospitalization Rates, Chronic Lower Respiratory Disease Grays Harbor County and Washington State, 1995-1999



## Chronic Lower Respiratory Disease

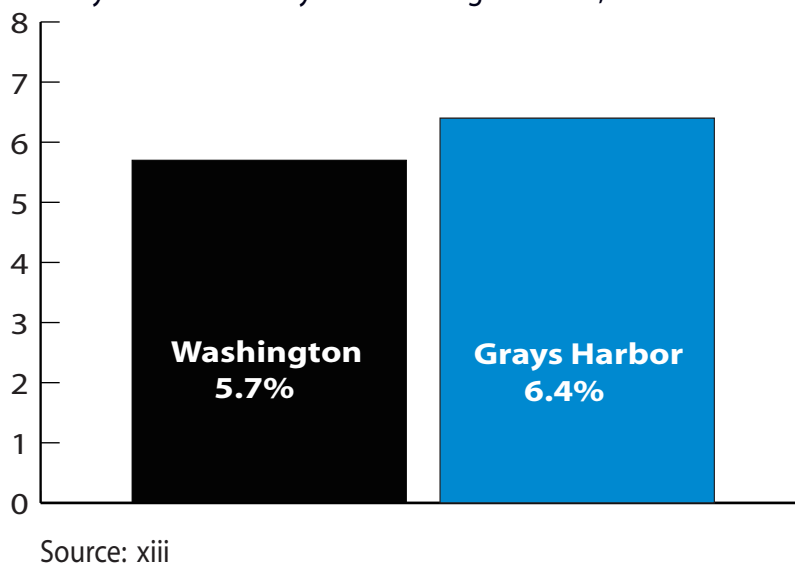
Chronic lower respiratory disease includes emphysema, chronic bronchitis, and chronic asthma. People who have chronic lower respiratory disease may have become short of breath with activity, and are prone to pneumonia and other respiratory infections. About 30% of chronic lower respiratory disease is attributable to tobacco use or exposure.<sup>iii</sup>

## Low Birth Weight

Babies born weighing less than 2,500 grams (about 5½ pounds) are considered to be low birth weight. Low birth weight is associated with a higher risk of serious illness and death during infancy.

There is a well-documented relationship between exposure to tobacco during pregnancy and an increased risk of low birth weight. This occurs because nicotine causes blood vessels, including those supplying the placenta, to constrict. This reduces the amount of oxygen and nutrients available to the growing fetus each time tobacco exposure occurs.<sup>xi</sup>

Chart 10. Percent of Births in Which Baby Was Low Birthweight (less than 2500 grams) Grays Harbor County and Washington State, 1995-1999



In the period 1995-99, 6.4% of babies born to Grays Harbor County residents were low birth weight. During the period 1990-99, mothers who reported smoking during their pregnancy were almost twice as likely to have a low birth weight baby as women who did not report smoking.<sup>\* iv</sup>

\*Among mothers for whom smoking status was known. This analysis included only singleton births, as multiple births are more likely to produce low birth weight infants.

# Tobacco is Killing Us

People who smoke are more likely to die young or to be significantly disabled by chronic illness during their lifetime. **Among Grays Harbor County residents age 35+ who died during the period 1995-1999, smokers were an average of 11.5 years younger at the time of their death than non-smokers.**<sup>+ xii</sup>

## Years of Potential Life Lost

One way to look at the impact of disease is to examine the years of potential life lost to age 65 (YPLL-65). This method calculates how many years of potential life were lost among people who died before age 65 due to a specific disease or cause of death.

It is well documented that cancer, heart disease, and certain respiratory diseases are related to tobacco use. It is also estimated that 10% of infant deaths (deaths in infants under 1 year of age), including SIDS deaths, are related to the use of tobacco. By calculating YPLL-65 for these conditions and applying what we know about the proportion of these diseases that are attributable to tobacco use, we find that during the five year period 1995-1999, **over 1800 years of potential human life** were lost among county residents due to the use of tobacco products.<sup>iii xiii</sup> That's the equivalent of 24 lifetimes.\*

## Cause-Specific Mortality

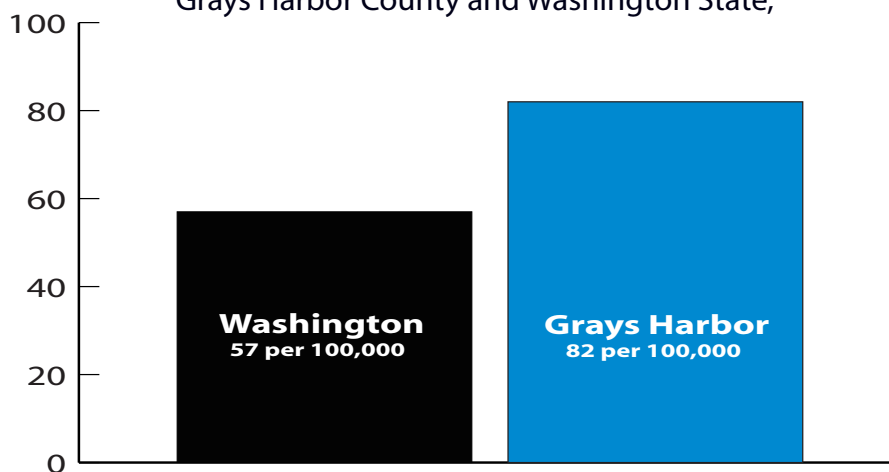
Grays Harbor County residents die from tobacco-related illness at a rate that is higher than elsewhere in Washington State. The county's rates of death from lung cancer, heart disease, stroke, and emphysema are all excessively high when compared with the state average.

### Respiratory Cancer

Respiratory cancer is the leading cause of cancer death among Grays Harbor County residents.

During the period 1995-99, the rate of death from respiratory cancer in Grays Harbor County was over 40% higher than the state average.<sup>xiii</sup>

Chart 11. Age-Adjusted (2000) Death Rates, Lung, Bronchus, & Trachea Cancer, Grays Harbor County and Washington State,



Source: xiii

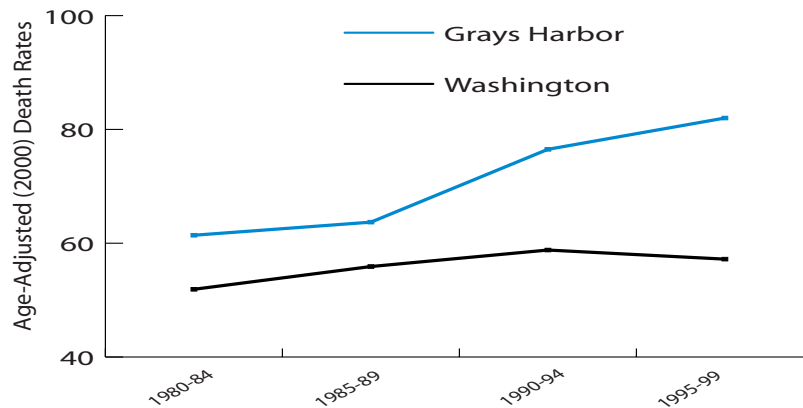
+ "Smokers" includes people for whom the death certificate item "did decedent smoke in the past 15 years?" was marked yes. In our examination, the average age at death of smokers was 66.9 years; the average age of non-smokers was 78.6 years. We included only people who were 35 years of age or older at the time of their death in our analysis.

\* According to the 1999 average life expectancy at birth for Grays Harbor County residents, which is 75.7 years.

Across the United States and throughout Washington, death rates from respiratory cancer have been rising steadily over the past few decades.

The rates in Grays Harbor County, however, have increased much more sharply than those in Washington State as a whole.

Chart 12. Mortality Trends, Lung, Bronchus & Trachea Cancer, Grays Harbor County and Washington State, 1980-84 - 1995-99



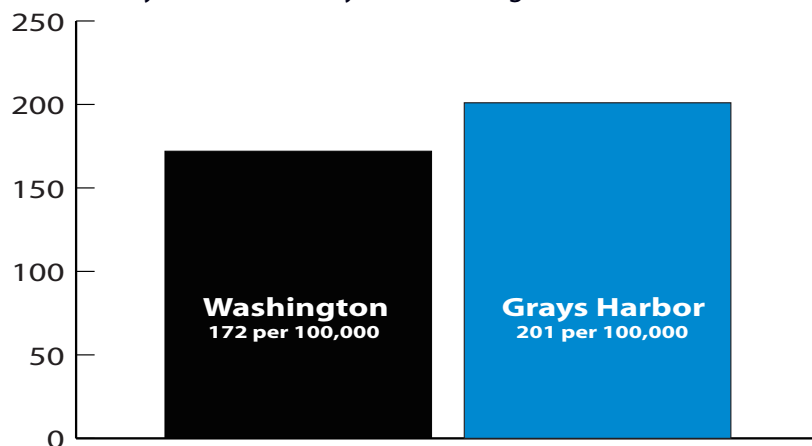
Source: xiii

## Heart Disease

Heart disease accounted for over 25% of all deaths among Grays Harbor County residents during the period 1995-99.<sup>xii</sup>

Rates of death from heart disease have decreased steadily in both the county and the state over the past 20 years, but Grays Harbor County's rates continue to be consistently higher than the state average.

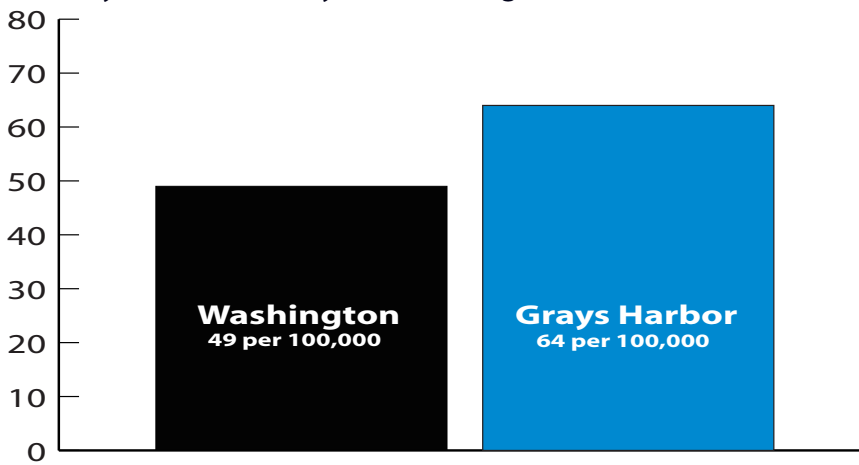
Chart 13. Age-Adjusted (2000) Death Rates, Coronary Heart Disease, Grays Harbor County and Washington State, 1995-1999



Source: xiii

## Chronic Lower Respiratory Disease

Chart 14. Age-Adjusted (2000) Death Rates,  
Chronic Lower Respiratory Disease,  
Grays Harbor County and Washington State, 1995-1999



Source: xiii

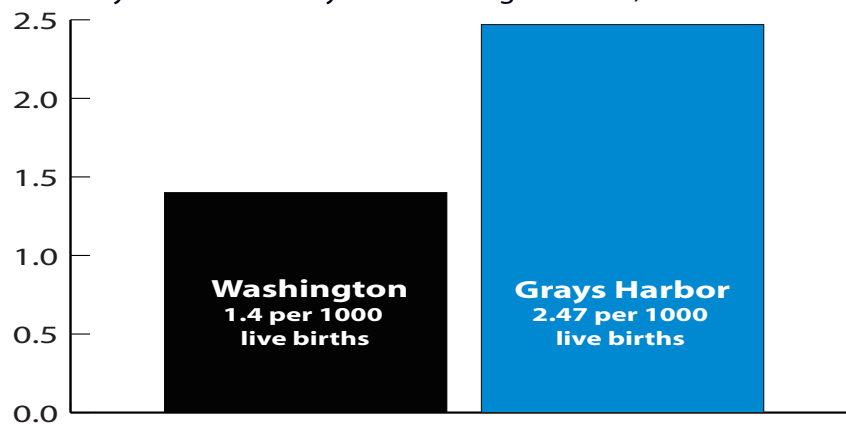
Chronic lower respiratory disease accounted for 7% of all deaths among county residents during the period 1995-99.<sup>xii</sup> The county's rates of death from chronic lower respiratory disease have been steadily increasing over the past two decades.

Rates for the most recent five year time periods indicate that this increase may be slowing or leveling out.

## Sudden Infant Death Syndrome

The Centers for Disease Control estimates that 10% of deaths due to sudden infant death syndrome (SIDS) are related to tobacco exposure.<sup>iii</sup> Over the past two decades, the rate of SIDS deaths among Grays Harbor County infants has been consistently higher than the state average. During the period 1995-99, the county's SIDS rate was almost double the state average.<sup>xiii</sup>

Chart 15. Infant Mortality Rates,  
Sudden Infant Death Syndrome,  
Grays Harbor County and Washington State, 1990-1999



Source: xiii

# Efforts Are Being Made To Reduce Tobacco Use

Across the United States, communities are recognizing tobacco as a priority public health issue. Many have created effective programs to decrease tobacco use and its impact on both individuals and society. Some of these same efforts are now beginning in Grays Harbor County.

## At the Federal and State Level

Laws have been enacted over the past two decades to reduce the amount of environmental tobacco smoke that people are exposed to in public buildings. These “clean indoor air” laws have made it illegal to smoke in places like grocery stores and many workplaces.

Federal agencies have also developed a media campaign called “The Truth” to educate the public using the mass media about the harmful effects of tobacco use. The ads are designed to create a sense of outrage about the way that the tobacco industry has done business, continuing to aggressively market and sell products that are known to cause harm when used as directed.

## At the State Level

### Prevention

The tobacco industry spends \$100 million annually to market their products in Washington State.<sup>iii</sup> Since the majority of people begin smoking before the age of 18, these advertisements particularly target young people.



*Courtesy of Washington State Department of Health*

The Washington State Department of Health recognizes the power of this advertising. In 2000, they launched an anti-tobacco media campaign using print, radio, television, and the internet to deliver messages to audiences statewide. Campaigns of this nature have been found to be effective in reducing tobacco use among youth in several other states in the U.S. The messages in the campaign were designed with assistance from young people to ensure their effectiveness with this audience.



During 2001, the Department of Health also sponsored additional youth tobacco prevention activities, including a tobacco-related reality-TV show and an anti-tobacco youth rally in Olympia. Activities of this sort are planned to continue in the coming months and years. According to Maxine Hayes, MD, the Washington State Health Officer, kids “take up tobacco to be part of an ‘in group.’ Our job is to change the culture of tobacco use, so that being ‘in’ means living tobacco free.”<sup>iii</sup>

## Cessation

In November 2000, the Washington State Department of Health launched a statewide “QuitLine”. This toll-free telephone line provides callers who wish to quit using tobacco with information and support over a period of weeks. During its first four months of operation, the QuitLine took calls from 5283 Washington residents.<sup>xiv</sup>

The Department has launched a media campaign to raise awareness of the availability of the QuitLine. These materials also encourage tobacco users in their desire to quit.

## Youth Access

It is illegal for persons under the age of 18 to purchase tobacco products in the state of Washington. The Washington State Liquor Control Board is responsible for enforcing this law through education and regulation of retailers who sell tobacco. The Washington State Department of Health assists in this effort through “compliance checks” in which retailers are tested in their selling practices when teens under 18 attempt to buy tobacco products in their establishments.

During the period 1998-99, 12.4% of Washington’s retailers failed their compliance checks by allowing underage teens to purchase tobacco without proper identification.<sup>iii</sup> The Washington State Liquor Control Board conducts an ongoing educational campaign for both retailers and consumers about the laws regarding tobacco sales to minors.



*Courtesy of Washington State Department of Health*



## **At the Local Level**

### **Prevention**

The most effective way to prevent tobacco-related illness and death is to never start smoking. Because most smokers begin their tobacco use before the age of 18, most prevention activities are aimed at young people. Involving young people in these efforts is a key strategy to ensure that the message is powerful and relevant to the intended audience. Several local agencies are conducting tobacco prevention activities targeted to Grays Harbor County's young people.

#### ***Community-Based Programs***

Over the past two years, Grays Harbor County Public Health and Social Services Department has worked to heighten awareness about tobacco at many community events such as Logger's Playday, the Grays Harbor County Fair, a "teen health fair", tribal health fairs, and school-based "family fun nights".

Many of the messages and materials provided to event-goers are targeted to youth and designed to further the goal of "changing the culture of tobacco use". The department will continue to be a presence at these community events with a consistent message about tobacco.

#### ***School-Based Programs***

Educational Service Districts (ESD's) all over Washington State have received funding to provide tobacco prevention education to children in grades 5-9. ESD 113, based in Olympia, is responsible for overseeing this education in Grays Harbor County schools. They are currently planning how this education will be delivered to students.

Since 1999, Grays Harbor County Public Health and Social Services Department has supported school-based prevention teams in 9 county high schools. The student teams are trained to focus on risk factors that influence adolescent use of alcohol, tobacco, and other drugs as well as impaired driving. Throughout the school year students and adult advisors work together to develop and implement youth-directed activities promoting prevention messages.

In March 2001, a local "tobacco prevention convention" was held for team members from all over the county. At this all-day convention, the team members were provided with information about the power of tobacco's media messages and given the tools to create their own counter-messages for their peers. They were given an inspirational address by a nationally known youth activist on how teens can make a difference.

### **Cessation**

Services designed especially to help teens quit smoking are provided by ESD113 to the county's students. This program is a part of the ESD's student treatment services for chemical dependency.

There are currently no specific programs available in Grays Harbor County for adults who wish to quit. Many individual health care providers, however, discuss smoking with their patients and are ready to assist with counseling, support, and nicotine replacement therapy (like gum or patches).

Since the launch of the Washington State “QuitLine”, residents of Grays Harbor County have represented 1.5% of the callers to the line.<sup>xiv</sup> This rate of use is slightly higher than would be expected, given that the population of Grays Harbor represents about 1.2% of the total state population.

Grays Harbor County Public Health and Social Services Department supports the QuitLine by including information about the availability of the QuitLine in both community-based activities and in individual patient care in the department’s clinics. Other health care providers in the community may also have this information available for their smoking patients.

## Youth Access

To monitor the ease with which kids can purchase cigarettes, retailer compliance checks are completed with tobacco retailers in Grays Harbor County each year. These compliance checks provide both information and an opportunity to educate retailers on the laws regarding youth access to tobacco products. In the period 1996-98, the rate of “failure” of these compliance checks among county retailers was similar to the state average.<sup>iii</sup>

## Tobacco is a Priority For the Future

The incredible negative impact of tobacco use on individuals, families, and communities is evident. Can we envision living in a community with less lung cancer, less heart disease, and fewer babies born small and sick? A significant reduction in tobacco use among county residents would bring us closer to achieving that goal than any other single change. Grays Harbor County Public Health and Social Services Department is committed to efforts to realize this vision, and has identified tobacco as its number one health priority for the coming years.



- 
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  - iii Washington State Department of Health, Office of Community & Family Health, Tobacco Prevention & Control. (2000). *Tobacco and Health in Washington State: County Profiles of Tobacco Use*. Olympia WA.
  - iv Washington State Department of Health, Center for Health Statistics. (2000). *Annual Statistical Files: Washington State Births 1990-1999, Fetal Deaths 1992-1999*. Olympia WA. Analysis Software: SPSS 10.8, SPSS, Inc. 1989-2000.
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  - vi Washington State Department of Social and Health Services, Division of Alcohol and Substance Abuse. (2000). *2000 Washington State Survey of Adolescent Health Behaviors: County Spreadsheets*. Olympia WA.
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  - ix Action on Smoking and Health. (2001). *Smoking, The Heart, and Circulation*. Fact Sheet No. 6. Available from: <http://www.ash.org.uk/html/factsheets/html/fact06.html>
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  - xiii Washington State Department of Health, Vital Registration System. *Annual Statistical Files; Births, Deaths, Marriage, Divorce, Abortions, Link Birth-Infant Death*. Olympia WA. Analysis Software: Public Health – Seattle & King County, Epidemiology, Planning, and Evaluation, Software for Public Health Assessment (Vista/PH). 1991-2001.
  - xiv Washington State Department of Health, Office of Community & Family Health, Tobacco Control Program. (2001). *Data From Spreadsheet Provided by Dept of Health Employee Carla Huyck 6/21/01*. Olympia WA.

## Data Tables

Percent of Women Giving Birth Who Report Smoking During Pregnancy Grays Harbor County and Washington State, 1985-1999		
	Washington State	Grays Harbor County
1985	25.6	38.0
1986	25.3	34.7
1987	25.1	37.8
1988	25.0	38.3
1989	21.8	37.6
1990	20.1	35.5
1991	19.4	36.1
1992	20.0	36.4
1993	17.9	32.8
1994	17.0	34.5
1995	16.1	30.4
1996	16.0	26.0
1997	14.6	25.7
1998	14.6	30.3
1999	14.2	30.5

Source: iii

Percent of Women Giving Birth Who Report Smoking During Pregnancy, By Maternal Age Group Grays Harbor County, 1985-1999				
	15-19	20-29	30-35	35+
1985	47.4	40.7	22.1	29.8
1986	40.1	37.1	21.9	25.0
1987	49.2	38.9	26.7	24.5
1988	47.7	40.1	27.9	27.1
1989	37.2	40.2	30.8	30.2
1990	43.5	37.7	22.7	22.6
1991	44.4	36.0	29.0	31.8
1992	44.0	35.7	33.8	33.3
1993	38.3	33.9	25.2	29.3
1994	40.3	33.9	31.6	33.9
1995	37.3	31.3	24.3	21.5
1996	33.1	26.8	17.9	22.9
1997	37.1	24.5	21.2	20.3
1998	36.9	32.4	25.2	14.1
1999	43.9	28.8	28.4	21.1

Source: iv

Percent of Women Giving Birth Who Report Smoking During Pregnancy By Educational Attainment, Grays Harbor County, 1985-1999					
	8th Grade or Less	Some High School	High School Graduate	Some College	Bachelor's Degree +
1992	61.1	51.5	32.1	24.9	11.3
1993	50.0	55.2	29.6	20.9	7.5
1994	37.8	57.6	32.6	28.6	6.9
1995	28.6	50.5	30.6	16.4	1.3
1996	36.5	41.3	27.8	16.3	3.9
1997	27.5	46.9	27.6	14.4	1.3
1998	20.3	48.7	30.9	19.0	4.3
1999	31.1	50.0	34.7	14.5	2.9

Source: iv

Percent of Women Giving Birth Who Report Smoking During Pregnancy By Marital Status Grays Harbor County, 1985-1999		
	Married	Unmarried
1985	29.2	57.7
1986	28.0	45.7
1987	26.1	57.0
1988	28.4	56.6
1989	23.2	48.0
1990	21.1	51.2
1991	24.7	49.3
1992	28.0	48.5
1993	23.4	45.2
1994	24.2	47.5
1995	18.3	47.1
1996	16.4	37.8
1997	13.2	40.2
1998	15.2	43.1
1999	19.2	39.9

Source: iv

Percent of Students Reporting Tobacco Use in the Past 30 Days, Grays Harbor County and Washington State, 1998 & 2000								
	1998				2000			
	Smoking Tobacco		Chewing Tobacco		Smoking Tobacco		Chewing Tobacco	
	Grays Harbor	Washington State	Grays Harbor	Washington State	Grays Harbor	Washington State	Grays Harbor	Washington State
6th Grade	10	4.7	7.5	3.5	5.5	4.1	3.3	0.78
8th Grade	21.1	15.22	13.02	6.66	19.3	12.5	6.36	2.06
10th Grade	24.2	21.8	16.2	9.62	25	19.8	10.3	4.6
12th Grade	29.2	28.6	25.8	12.4	35.5	27.7	15.5	8.8

Source: vi

<b>Age-Adjusted (1970) Incidence Rates*, Cancer of the Lung and Bronchus Grays Harbor County and Washington State, 1992-94 - 1996-98</b>		
	<b>Washington State</b>	<b>Grays Harbor</b>
<b>1992-94</b>	47.6	71.9
<b>1993-95</b>	46.7	68.4
<b>1994-96</b>	45.2	68.9
<b>1995-97</b>	45.6	71.1
<b>1996-98</b>	59.7	89.9

Source: viii

\* number of reported cases of cancer of the oral cavity and pharynx per 100,000 population

<b>Age-Adjusted (1970) Incidence Rates*, Cancer of the Oral Cavity and Pharynx Grays Harbor County and Washington State, 1992-94 - 1996-98</b>		
	<b>Washington State</b>	<b>Grays Harbor</b>
<b>1992-94</b>	9.2	11.9
<b>1993-95</b>	9	13.1
<b>1994-96</b>	8.6	10.9
<b>1995-97</b>	8.6	14.5
<b>1996-98</b>	10.1	14.3

Source: viii

\* number of reported cases of cancer of the oral cavity and pharynx per 100,000 population

<b>Age-Adjusted (2000) Unduplicated Hospitalization Rates*, Coronary Heart Disease, Grays Harbor County and Washington State, 1987-91 - 1995-99</b>		
	<b>Washington State</b>	<b>Grays Harbor</b>
<b>1987-91</b>	453.3	628.1
<b>1988-92</b>	445.6	640.5
<b>1989-93</b>	437.1	633.0
<b>1990-94</b>	429.8	622.7
<b>1991-95</b>	422.9	609.7
<b>1992-96</b>	418.6	609.8
<b>1993-97</b>	415.9	612.6
<b>1994-98</b>	410.6	614.7
<b>1995-99</b>	324.2	491.3

Source: x

\* number of unduplicated hospital discharges due to coronary heart disease per 100,000 population

<b>Age-Adjusted (2000) Unduplicated Hospitalization Rates, Stroke, Grays Harbor County and Washington State 1987-91 - 1995-99</b>		
	<b>Washington State</b>	<b>Grays Harbor</b>
<b>1987-91</b>	237.4	280.4
<b>1988-92</b>	233.9	273.7
<b>1989-93</b>	230.7	269.0
<b>1990-94</b>	229.5	265.3
<b>1991-95</b>	230.5	264.6
<b>1992-96</b>	231.7	266.7
<b>1993-97</b>	232.7	279.6
<b>1994-98</b>	233.6	288.1
<b>1995-99</b>	186.1	233.8

Source: x

\* number of unduplicated hospital discharges due to stroke per 100,000 population

<b>Age-Adjusted (2000) Unduplicated Hospitalization Rates*, Chronic Lower Respiratory Disease* Grays Harbor County and Washington State, 1987-91 - 1995-99</b>		
	<b>Washington State</b>	<b>Grays Harbor</b>
<b>1987-91</b>	103.9	123.3
<b>1988-92</b>	104.2	123.4
<b>1989-93</b>	107.7	122.9
<b>1990-94</b>	106.5	126.3
<b>1991-95</b>	106.5	132.9
<b>1992-96</b>	106.2	145.0
<b>1993-97</b>	106.0	152.3
<b>1994-98</b>	102.9	160.7
<b>1995-99</b>	82.5	135.1

Source: x

\* number of unduplicated hospital discharges due to chronic lower respiratory disease per 100,000 population

\*\*new ICD-10 terminology - formerly known as chronic obstructive pulmonary disease (COPD)

Percent of Babies Born Weighing Less Than 2500 Grams Less Than 2500 Grams (Low Birthweight) Grays Harbor County and Washington State, 1980-84 - 1995-99		
	Washington State	Grays Harbor
1980-84	5.15	5.76
1981-85	5.18	5.68
1982-86	5.17	5.93
1983-87	5.23	6.19
1984-88	5.23	6.22
1985-89	5.35	6.34
1986-90	5.35	6.39
1987-91	5.33	6.17
1988-92	5.32	5.74
1989-93	5.31	5.56
1990-94	5.24	5.43
1991-95	5.28	5.63
1992-96	5.37	6.01
1993-97	5.44	6.37
1994-98	5.54	6.31
1995-99	5.66	6.43

Source: xiii

Years of Potential Life Lost To Age 65* Due to Smoking Related Illness With Smoking-Attributable Fraction Grays Harbor County, 1995-1999			
Cause of Death	Years of Potential Life Lost	Smoking-Attributable Fraction	Smoking-Attributable Years of Potential Life Lost
All Cardiovascular Disease	1912	21%	402
COPD	62	30%	19
Other Respiratory Diseases	48	24%	12
Infant Deaths	1690	10%	169
Lung/Trachea/Bronchus Cancer	649	85%	552
Other Cancer	2221	30%	666
Total	6582		1819

Source: iii, xiii

\* The number of years of life lost due to listed causes, assuming that people would otherwise have lived to at least age 65



<b>Age-Adjusted (2000) Death Rates*</b> <b>Cancer of the Lung, Trachea, &amp; Bronchus</b> <b>Grays Harbor County and Washington State, 1980-84 - 1995-99</b>		
	<b>Washington State</b>	<b>Grays Harbor</b>
<b>1980-84</b>	51.9	61.4
<b>1981-85</b>	52.4	62.2
<b>1982-86</b>	53.5	60.5
<b>1983-87</b>	54.3	60.5
<b>1984-88</b>	55.1	60.3
<b>1985-89</b>	55.9	63.7
<b>1986-90</b>	56.7	64.2
<b>1987-91</b>	56.8	70.1
<b>1988-92</b>	57.7	74.3
<b>1989-93</b>	58.8	73.1
<b>1990-94</b>	58.8	76.5
<b>1991-95</b>	58.8	73.7
<b>1992-96</b>	58.9	74.8
<b>1993-97</b>	58.0	78.0
<b>1994-98</b>	57.2	82.6
<b>1995-99</b>	57.2	82.0

Source: xiii

\* Number of deaths due to cancer of the lung, trachea & bronchus  
per 100,000 population

<b>Age-Adjusted (2000) Death Rates*</b> <b>Coronary Heart Disease</b> <b>Grays Harbor County and Washington State, 1980-84 - 1995-99</b>		
	<b>Washington State</b>	<b>Grays Harbor</b>
<b>1980-84</b>	282.1	347.6
<b>1981-85</b>	276.3	351.3
<b>1982-86</b>	270.2	346.5
<b>1983-87</b>	261.0	323.1
<b>1984-88</b>	253.9	314.5
<b>1985-89</b>	243.1	297.5
<b>1986-90</b>	232.8	273.7
<b>1987-91</b>	223.4	263.6
<b>1988-92</b>	215.2	255.5
<b>1989-93</b>	208.4	251.3
<b>1990-94</b>	201.4	243.4
<b>1991-95</b>	195.6	235.6
<b>1992-96</b>	191.3	222.5
<b>1993-97</b>	184.7	222.1
<b>1994-98</b>	176.9	209.7
<b>1995-99</b>	172.4	201.0

Source: xiii

\* Number of deaths due to coronary heart disease  
per 100,000 population

<b>Age-Adjusted (2000) Death Rates*</b> <b>Chronic Lower Respiratory Disease</b> <b>Grays Harbor County and Washington State, 1980-84 - 1995-99</b>		
	<b>Washington State</b>	<b>Grays Harbor</b>
<b>1980-84</b>	40.2	38.0
<b>1981-85</b>	41.7	42.2
<b>1982-86</b>	43.1	41.3
<b>1983-87</b>	44.4	49.9
<b>1984-88</b>	45.5	52.5
<b>1985-89</b>	46.5	55.8
<b>1986-90</b>	47.1	55.0
<b>1987-91</b>	47.2	61.9
<b>1988-92</b>	47.9	61.3
<b>1989-93</b>	48.5	67.2
<b>1990-94</b>	49.2	66.9
<b>1991-95</b>	49.2	69.4
<b>1992-96</b>	49.4	70.1
<b>1993-97</b>	49.3	68.5
<b>1994-98</b>	48.9	63.0
<b>1995-99</b>	49.2	63.8

Source: xiii

\* Number of deaths due to chronic lower respiratory disease  
per 100,000 population

<b>Infant Mortality Rates*,</b> <b>Sudden Infant Death Syndrome</b> <b>Grays Harbor County and Washington State, 1980-84 - 1995-99</b>		
	<b>Washington State</b>	<b>Grays Harbor</b>
<b>1980-84</b>	2.57	4.24
<b>1981-85</b>	2.61	4.54
<b>1982-86</b>	2.67	4.86
<b>1983-87</b>	2.62	4.86
<b>1984-88</b>	2.63	5.12
<b>1985-89</b>	2.60	4.65
<b>1986-90</b>	2.50	3.66
<b>1987-91</b>	2.43	2.96
<b>1988-92</b>	2.24	2.52
<b>1989-93</b>	2.10	2.79
<b>1990-94</b>	1.89	3.05
<b>1991-95</b>	1.69	3.33
<b>1992-96</b>	1.45	3.18
<b>1993-97</b>	1.34	3.48
<b>1994-98</b>	1.21	3.00
<b>1995-99</b>	0.91	1.86

Source: xiii

\* Number of deaths due to SIDS per 1000 live births

# Appendix A - Primary Data Sources

In order to compile a comprehensive picture of tobacco use in among Grays Harbor County residents and of the local burden of tobacco-related disease and death, data were obtained from a variety of sources. The following provides a brief description of each data system.

## Population Data

Population data are provided by the Washington State Office of Financial Management, Forecasting Division. Population estimates are based on the data obtained in the 1990 census. This is the best population data that will be available for Washington State until the detailed data files from the 2000 U. S. Census are released.

## Behavioral Risk Factor Surveillance System

The Behavioral Risk Factor Surveillance System (BRFSS) is a telephone survey that provides indicators of health risk behavior, health care use and access, preventive practices, and attitudes in the population. BRFSS includes a sample of English-speaking adults in households with telephones, and may underestimate some health behaviors associated with non-English speaking populations, transient populations, institutionalized persons, and persons living in military housing. Because the BRFSS relies on self-reported data, it may underestimate risk factors that are seen by respondents as socially unacceptable.

## Washington State Survey of Adolescent Health Behaviors

The Washington State Survey of Adolescent Health Behaviors (WSSAHB) is a survey given to 6th, 8th, 10th, and 12th grade students enrolled in Washington State public schools. It may underestimate risk behaviors because data is self-reported by students on a questionnaire.

## Birth Certificate System

The Birth Certificate System collects information on all births in Washington. Information on the certificate comes from both medical records and worksheets completed by the mother. Much information about the health of Washington's mothers and babies can be gleaned from these records. Certain information, such as history of alcohol or tobacco use, does rely on mother's self-report, however, so the system may underestimate behaviors that are seen as socially unacceptable during pregnancy.

## **Death Certificate System**

The Death Certificate System provides demographic information on people who die, in addition to the primary and underlying causes of death. The death certificate system also collects information on whether or not the deceased had smoked cigarettes in the past 15 years.

Caution is advised for analyzing racial subgroups, because the number of deaths may be underestimated due to misclassification.

## **Comprehensive Hospital Abstract Reporting System (CHARS)**

CHARS is a database which provides data on the number of hospital discharges by medical condition. It does not include emergency room visits which do not result in hospital admission, visits to clinics or other private practices, or discharges from VA or state mental hospitals. This lack of complete treatment information results in an underestimation of several conditions. The reader should be aware that falling hospitalization rates do not necessarily indicate a true reduction in disease prevalence; rather, in this climate of health-care cost reduction many treatments that were formerly done in the hospital, such as cancer chemotherapy, are now being done in outpatient clinics or at home.

# Appendix B - Technical Notes

## Use of Data to Draw Conclusions

Health data is a powerful tool for assessing the health of communities; however, it can be extremely difficult to determine the causes of health problems in a population. Even the best data gives an incomplete picture of the complex mix of factors responsible for human disease. Caution must be used in drawing conclusions about the true causes of health problems based on community health data alone.

## Rates

To allow comparisons of health events between different sized populations, rates are used. A rate is the number of events (such as deaths) in a specified time period divided by the number of people at risk for these events for that period; for example, a county population. This figure is generally multiplied by a constant such as 1,000 or 100,000 to get a number that is easy to read and compare and is reported as “per 1,000” or “per 100,000”. For example, if 6 deaths due to accidental injury occurred in a population of 50,000 people in a given time period, the death rate due to accidental injury would be reported as 12 deaths per 100,000 residents. Statisticians agree that reliable rates cannot be calculated for less than five occurrences of any event during a given time period.

## Crude Rates

The rate of any demographic event computed for an entire population is considered a crude rate. Crude rates adjust for differences in population size but no differences in population characteristics. Population characteristics may also need to be considered in interpreting comparisons.

## Age-Adjusted Rates

The age structure of a population has great impact on health indicators such as birth rates, death rates, and illness incidence rates. For example, an older population would be expected to have higher death rates than a younger population. A statistical computation called “age-adjustment” removes the impact of a population’s age composition through a series of mathematical calculations. Age-adjusted rates are calculated by taking the incidence data (death, illness) for a population such as a state or county and applying it to a “standard” population. This calculation then tells us what the population’s rate would be if it had the same age distribution as the standard population. The major use of age-adjusted rates is to allow comparisons between different areas and over various periods of time.

## Rolling Averages

When numbers of events are small, rates can fluctuate widely from year to year. The effect of such fluctuations is larger when the population being examined is small. To stabilize the rate in order to make meaningful observations about the trend over time, the rates are aggregated into “rolling averages”. For example, instead of data points for 1987, 1988, 1989, etc., data points would be presented for 1987-91, 1988-92, 1989-93, etc.

## Smoking-Attributable Disease and Death

Research done by McGinnis and Foege (1993) has provided us with estimates of the proportion of any particular illness that is caused by cigarette smoking (the smoking-attributable fraction). The following table shows the specific diagnostic codes and the smoking attributable fraction associated with each illness.

ICD-9CM Code	Diagnoses	Smoking-attributable Fraction
Infectious Disease 010-012	Respiratory Tuberculosis	not specifically documented in report
Neoplasms 140-149 150 157 161 162 180 188 189	Lip, oral cavity, pharynx Esophagus Pancreas Larynx Trache, lung bronchus Cervix uteri Urinary bladder Kidney, other urinary	85% trachea/lung/bronchus 30% all cancer
Cardiovascular Disease 410-414 380-98, 401-04, 415-17, 420-29 430-438 440-448	Coronary heart disease Other heart disease Cerebrovascular disease Other arterial disease	21% all cardiovascular disease
Respiratory Diseases 490-492, 496 480-487, 493	Chronic obstructive pulmonary disease Other respiratory disease	30% of COPD 24% pneumonia, flu, asthma
Injuries 890-899	Burn deaths	Nor specifically documented in report
(Children <1) Perinatal Conditions 765 769 770	Short gestation/low birthweight Respiratory distress syndrome Respiratory conditions of newborn	10% all infant deaths
(Children <1) Signs and Symptoms 798.0	Sudden Infant Death Syndrome (SIDS)	10% all infant deaths